

Documentation for Constants.h

Steven Andrews, © 2003

See the document “LibDoc” for general information about this and other libraries.

```
#define c_SI 2.99792458e8           // m/s
#define c_SSI 2997.92458           // Å/fs
#define hbar_SI 1.054588664e-34    // J s
#define hbar_SSI 0.1054588664     // aJ fs
#define amu_SI 1.6605655e-27       // kg
#define amu_SSI 16.605655         // 1e-28 kg
#define e_SI 1.6021892e-19         // C
#define e_SSI 0.16021892          // aC
#define eps_SI 8.854187818e-12     // C^2/J m
#define eps_SSI 8.854187818e-4     // aC^2/aJ Å
#define NA_SI 6.022045e23          // unitless
```

Requires: nothing

Example program: VESim.c

Written 1/00. Works with Metrowerks C.

This is just a header file, with no routines. It is a collection of fundamental and commonly used constants, using both mks units (SI) and small units (SSI). The fundamental and derived units are:

<u>property</u>	<u>SI</u>	<u>SSI</u>
length	m	Å
mass	kg	10 ⁻²⁸ kg
time	s	fs
current	A	mA
temperature	K	K
force	N	10 ⁻⁸ N
charge	C	aC
resistance	Ω	kΩ
energy	J	aJ
power	W	mW
potential	V	V

The constants are:

c	speed of light
hbar	Planck's constant/2π
amu	atomic mass unit
e	electron charge
eps	electrical permittivity of space
NA	Avagadro's number

Possible change: All letters of these constants should be capitalized to conform with my standard notation.